Previous references.

Gen. File No. 268-09

1909:10

Serial Nos. 1 — 18

(Genl Secs)

Later references.

GENERAL AND REVENUE SECRETARIAT.

Serial Nos. 1 — 18

Part B. for September 1910

SUBJECT.

Specification of Invention for improvements in extracting gold and silver from crushed ore and ore slimes and means therefor"

1. Messrs. De Penning & De Penning
19, Walker Lane
Ithnáth.
Letter dated 20.4.10.

Forwarding an appln. dated the 28th Feb. 1910 of Mr. Andrew Frederick Crosse of 41, Cyprus Terrace Hyde Park, London, England Consulting Engineer for leave to file a specification in respect of an invention for "Improvements in G. R. S. 58 extracting gold & silver from crushed ore and ore slimes and means therefor"

2. To Messrs

No. Cy. 5733 dated 2.5.10.

Enquires whether he has applied to have the specification in Govt of India and if so, to produce an authenticated copy thereof that Govt caused in this behalf.

3. To the officer in charge of S.H. Jetty

No. Cy. 5734 dated 3.5.10.

Remits Rs 10/- the application to publish the required specification.

4. To the State Geologist

No. Cy. 5735 dated 3.5.10.

Forwards the specification for opinion

5. From the State Geologist.

No. 2305 dated 7.5.10.

States the precise arrangement of plant presents some novel features not yet patented in Mysore and recommends the grant of leave applied for.

6. To the officer in charge of S. H. Jetty

No. 482 dated 7.6.10.

Acknowledges the receipt of Rs 10 settlement 8 C 3.

7. From Messrs. De Penning & De Penning.

Lilan No 142 dated 9th June 1910

Forwards a copy of the order of the Govt of India showing that the applicant Mr. Andrew Frodsham Crosse of London was granted leave to file the specification. It says it was so filed on the 20th April 1910

G.R.S.11]

Inventions Registers

1909.-10

GENERAL AND REVENUE SECRETARIAT

(Genl-Inv)

NOTES.

Genl File No. 2687/09-10

FILE HEADING.

Invention for "Improvements in extracting gold and silver from crushed ore or ore slimes and means therefor".

From

Messrs DePenning & DePenning, Patent Agents, 19 Walkers Lane Howrah

No. Letter Dated 26.4.10 Received 23.4.10

Diary No. 4328	Enclos.	Spare Copies	Serial No. /

BRIEF ABSTRACT OF LETTER.

Forwards an application dated the 28th Feb 1910 of Mr Andrew Frederick Crosse of 41 Oxford Terrace, Hyde Park, London, England, Consulting Engineer for leave to file a specification in respect of an invention

NOTES AND ORDERS.

for "Improvements in extracting gold and silver from crushed ore or ore slimes and means therefor"

With the above have been received, a Power of Attorney and a fee of Rs 10.

NOTES—First sheet

GPB—30,000—3-4-07.

General and Revenue Secretariat.

Gen File No. 268 of 1910

Serial No.

43 26

2 The file will be remitted to the Dy.

3 As the applicant has not stated in the application whether similar application has been made either in the United Kingdom or in the Govt of India, Govt Deputy & the Deputy may be asked to furnish information on this point.

4. Meanwhile the application may be referred to Govt the State Geologist for opinion.

5. 3 offs are accordingly submitted herewith. VS.

(28/4/10)

6 Issue drafts

29.4.10.

2. Do. Messrs Deeming & Deeming Palais Agent 1st no G 5733 d 2.5.10 Enquiries whether he has applied for leave to file a Specification - in Govt of India adg so, to produce the authenticated Copy of the order that Govt issued in this behalf

3. Do. The Officers in Ch yr State Hyg no Dy - no G 5734 d 3.5.10.

NOTE—Contn. sheet.

GPB—55,000—27.4.09

General and Revenue Secretariat.

File No. 2 68 of 1909-10

Serial No.

Remit Rs 10 being the fee for the application to file a specification.

4. 20. The State Geologist - G. No G 5735 d 3.5.10

Forward the specification in question for opinion.

5. From the Steno - No. 2305 d 7.5.10

With reference to the above, state the precise arrangement & claims presents some novel features and has not likely been patented in Mysore and recommends that the Leane applies for to file a specification question may be granted

Submitted.

7 This may lie over a week till a reply to the serial 2 above be received from messrs Deperning & Depenning

Gen 16/5 — (14.5.10) & yrs for 16/5/10

6 Fr. the Officer in Ch. of State Stages G. No 482 d 7.5.10

Acknowledge the receipt of Rs Send with Sl 3 above.

9. Submitted for perusal. Please see Mara & this note.

(17/5/10 pm) 18 10 * Seen — Keep pm 18/5/10.

Note—Contn. sheet.

GPB—55,000—27-4-09

General and Revenue Secretariat.

Em File No. 268 of 1909-10

Serial No.

7. From messrs de Penning de Penning patent agents 6 Watkins lane, Hoxton letter No. 142 dated 9th June 1910.

5681

Forwarding a copy of the order of the Govt of India, showing that the applicant Mr Andrew Frederick Crosse of London was granted leave to file a the specification mentioned in the margin. It was filed on the 20th April 1909.

11. The expert's opinion (please vide Sl 5) in this case is also in favour of the leave being granted.

12. If ordered, the draft granting the Application mentioned in Sl 1 will be submitted.

(14.6.10) 13. Yes. Put up draft.

Vor 14/6/10

14/6/10

14. Two drafts are submitted as usual for approval.

(22/6/10)

Vor 22/6

15 Issued 26/6/10

8. To Mr. Andrew Frederick Crosse, 24 Oxford Terrace, Hyde park London. Grants leave to file a the specification in respect of the invention mentioned in Sl 1.

X No. G.B.U.d 8.7.10

NOTE—Contn. sheet.

GPB—55,000—27.4.09

Secretariat. | From File No. 26 B of 190 9-10

Serial No.

9. Messrs Depenning Depenning Patent Agents 19 watkins lane Howrah. Communicate the Sl 8—

10. From the above Company. dated 16.7.10. Files the specification in question (vide Sl 1) and forwards the fee of Rs 30 required for the same being filed.

16. Usual drafts are put up & submitted for approval.

The order requires signature at the foot of the Certificate and the drafts of the same as initial.

(26.7.10) VS

Approved
Issue
VS
26.7.10

11. To the Cauvery, Mysore Gazette, No. G. 654 d/30.7.10.— Notifies the filing of the Specification referred to in Sl 1.

12. To Messrs DePenning & DePenning, No. G. 655 d/30.7.10. Forwards Cop of the above Notice & returns Sl 8 with the certificate at foot duly filled in & signed, for communication to the party concerned.

13. To the Offr. in ch of State Sugar Exp, No. G. 656 d/30.7.10 — Remits Rs 30/ received with Sl 10.

14. To the Chief Engineer State Geologist & Supt Govt Museum, No. G. 657-9 d/30.7.10.— Forwards a Cop of the Specification referred to above

NOTE—Contn. sheet.

General and Revenue Secretariat.

File No. 268 of 1909-10

Serial No.	
15.	From the Officer in charge Hughes dy No 32d 2.8.10. Acknowledges the receipt of Rs 80 sent with Sl 13 above.
16.	To. The State Geologist - No 189 dt 18/8. Acknowledges the receipt of a copy of the Specification sent with Sl 14. Sls 15 & 16 are submitted for perusal Execution Register requires initial in the last column with reference to Sl 15. The file will be Retd in Dons till the receipt of acknowledgment from the Supt of Govt Museum & the Chief Engr (4/8/10) VS To 5/8/10.
17.	To. The Supt Govt Museum No 43 dt 1.8.10. Acknowledges the receipt of a copy of Specification sent with Sl 14 Chief Engineer The receipt of acknowledgment from the Chief Engineer is to be awaited (6/8/10) VS Seen 9.8.10

Initialled

Sus

NOTE—Contn. sheet.

GPB—55,000—27.4.09

G. R. S. 12]
General and Revenue Secretariat.

fm File No. 268 of 1909-10

Serial No.	
18	From the Chief Engr- Letter No. 6099/2-60-60 Acknowledging receipt of the specification sent with 8-16. The correspondence may be filed now- 20 11-8-10. 15 File 11/8/10

65

Rec'd

NOTE—Contn. sheet.

GPB—55,000—27.4.09

Cl 5 4328

19 Watkins Lane

Howrah

20th April 1910

Enn. 208 1909-10

811

To

The Secretary to the Governmentof

His Highness The Maharajah of Mysore

General & Revenue Department

Bangalore.

Sir,

We have the honor to enclose herewith an application from Andrew Frederick Crosse of 41 Oxford Terrace, Hyde Park, London, England, Consulting Metallurgist, for leave to file a specification of an invention for "Improvements in extracting gold and silver from crushed ore and ore slimes and means therefor".

We also forward the fee thereon of Rs 10/- and shall feel obliged by the "Order" granting leave to file the specifications being sent to us in due course.

We have the honor to be

Sir

Ypur most obedient servants

DePenning & DePenning

Patent Agents

DEPENNING & DEPENNING
PATENT AGENTS
CALCUTTA.

2

From

Messrs De Penning & De Penning
19 Watkins Lane, Howrah

COUPON TO BE RETAINED BY PAYEE.

[The Remitter may write here any communication to the Payee, and he is recommended to add his name and address for the information of the Payee.]

Amount of Order Rs. 10/-

Name of remitter D & D

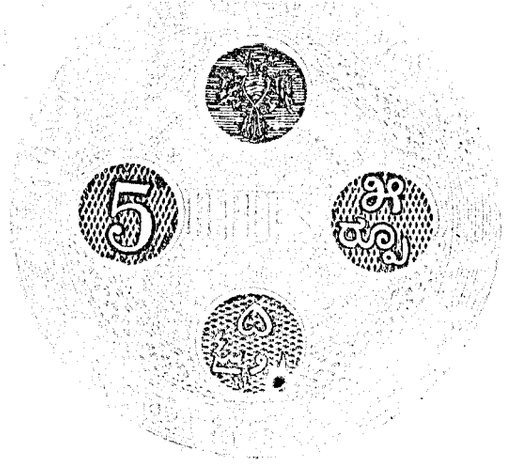
On a/c application

Andrew F. Crose.

Received Rs 10 (rupees ten only) today

23/4/10

To Br. V



In the matter of the Inventions and Designs Regulation, 1894, of the Government of Mysore and in the matter of Andrew Frederick Crosse, of 41 Oxford Terrace, Hyde Park, London, England, Consulting Metallurgist.

I, the above named Andrew Frederick Crosse, do hereby retain, constitute and appoint Mr. L. A. DePenning of Messrs DePenning & DePenning of 19 Watkins' Lane Howrah as my Agent and Attorney to apply for and obtain from the Government of Mysore, an Exclusive Privilege or Letters Patent for "IMPROVEMENTS IN EXTRACTING GOLD AND SILVER FROM CRUSHED ORE AND ORE SLIMES AND MEANS THEREFOR" and I authorise him to sign my name to such papers and writings and do such acts regarding the same, including the appointment of a substitute or substitutes, as may be necessary or expedient.

Dated this 28th day of February 1910

Signed, Sealed and Delivered at Johannesburg } Andrew F. Crosse.

in the presence of

R. S. Dammond Burnam Box 160 Joh'burg. Mining Engr
Edward A. Croghan. Box 2189, Johannesburg. Metallurgist.

A P P L I C A T I O N

To

The DEWAN of MYSORE

The application of ANDREW FREDERICK CROSSE, of 41 Oxford Terrace, Hyde Park, London, England, Consulting Metallurgist, for leave to file a specification under Part 1 of the Inventions and Designs ~~Rules~~ Regulation, 1894.

1, The Applicant has obtained a Patent in the United Kingdom dated and sealed as on the 5th day of January 1909 and actually sealed on the 9th day of December 1909, for "IMPROVEMENTS IN EXTRACTING GOLD AND SILVER FROM CRUSHED ORE AND ORE SLIMES AND MEANS THEREFOR".

2, To the best of the information and belief of the applicant, the invention is now within the meaning of Part 1 of the Inventions and Designs Regulation 1894, and no circumstance exists which, if the applicant is authorized to file a specification and files it in accordance with that Part, will disentitle him to an exclusive privilege thereunder in respect of the invention.

3. The following is a description of the invention

DEPENNING & DEPENNING
PATENT AGENTS
CALCUTTA.

This invention relates to the extraction of gold and silver from crushed or pulverised ore, or from ore slimes, i.e., the minute particles of pulverised ore mixed with liquid. It is designed with the object of treating the material effectually and expeditiously, and consists in treating the slimes or the like with solvent solution, obtaining a thickened pulp or concentrated underflow and a relatively clear overflowing liquid, extracting the precious metal contents from the overflowing solvent solution, then directly returning the solvent solution freed of the precious metals and mixing it with the concentrated underflow, so that the solids are repeatedly treated with the solvent solution during circulation and until practically the whole of the precious metal contents are extracted.

In carrying out this invention I may use a concentrator or classifier, preferably in the form of a conoidal vessel provided with an annular overflow or rim launder; means (preferably an ordinary zinc precipitation box) for extracting the precious metals from the solvent solution or liquid overflowing from the concentrator or classifier; an air lift pump for returning the concentrated underflow or thickened mixture and solution freed of the precious metals to the top of the concentrator; and a supply of compressed air at a pressure proportionate to the height the mixture has to be lifted.

I will proceed to further describe my invention by aid of the accompanying drawings, in which

Figure 1 is a front elevation of a general arrangement of plant for carrying out my invention.

Figure 2 is a side elevation of figure 1, with one of the treatment tanks 1, and its connections removed.

Figure 3 is a plan of figure 1.

Figure 4 is an enlarged view of the concentrator or classifier.

Figure 5 is a side elevation of the air lift pump and its connections.

Figure 6 is a part sectional elevation at right angles to figure 5, shewing the float box with the rod for operating the air valve, and

Figure 7 is a slightly modified arrangement of a plant for carrying out the invention.

Referring more particularly to the arrangement illustrated in figures 1, 2 and 3, 1 represent suitable treatment tanks, (shown of inverted cone shape for the greater portion of their height and cylindrical for the remaining portion,) into which the slimes or the like containing the gold and silver values are conducted. The slimes are preferably first mixed with water (in which case the solvent solution would be subsequently added) or cyanide or other solvent solution in the usual proportion to obtain a liquid pulp or mixture of the solids and liquid of a suitable degree of fluidity.

2, represent conical baffles supported in the tanks 1 by girders 3 resting upon or secured to the upper edges of the tanks. These baffles 2 serve for preventing the too violent agitation of the mixture as it flows into the tanks, and facilitates the settlement of the solids.

Each of the tanks 1 is provided with an annular overflow or rim launder 4 having a pocket 5 and pipe connection 6 (see more particularly figure 4) communicating with an ordinary precipitation box 7. The precipitation box 7 is placed in communication, through suitable pipe connections 8, 9, provided with cocks or valves 10, 11 with air lift pumps 12, which are also connected with the bottoms of the tanks 1 by pipes 14, 15, provided with cocks or valves 16, 17,

Each of the air lift pumps, as shown more particularly in figures 5 and 6 comprises a well 12 having an air admission pipe 25 fitted with cock 19 and the lift pipe 20. The air pipe 25 is connected to the bottom of the well 12 and is provided with the usual nozzle 21 and a cleaning plug 22. The admission of the air to the pump is controlled by a float 23 suitably disposed in a float box 24. The float lever is connected to a rod 25a which at its other extremity is connected to and actuated a valve 25b see figures 1 and 2.

26 represent launders shown attached to and arranged to receive the mixture from the lift pipes 20 of the pumps. These launders 26 deliver the mixture elevated by the pumps 12, to the tanks 1.

27 represents a suitable settling vat or tank into which the finished or treated material is conducted from the air lift pumps 12 by pipes 28 provided with cocks 29. The settling tank is preferably provided with a decanting arm 30.

31 represents the discharge pipe at the bottom of the settling vat, which pipe 31 is fitted with a cock 32.

33 represent pipes fitted with cocks 34, which may be used for discharging the material instead of conducting it to the settling vat.

The operation may be briefly described as follows:- The crushed ore or slimes containing the metal values to be extracted having been preferably first mixed with water (to which the solvent solution would be subsequently added) or cyanide or other solvent solution in the usual proportion to obtain a liquid pulp or mixture, are conducted in the baffle

cones 2 of the concentrators or conoidal vats 1 wherein the solids settle and from which the separated liquid overflows into the annular overflow or rim launders 4. From the rim launders 4 the liquid (now bearing a certain proportion of the metal values) flows into the precipitation box 7, wherein the values are precipitated, and from thence by the pipes 8, 9, to the wells of the air lift pumps 12 and to the float boxes 24. The valves 16, 17 on the connections 14,15 between the bottoms of the tanks 1 and air lift pumps 12 are now opened and the concentrated underflow permitted to gravitate into the wells of the pumps 12 to mix with the new barren solution from the zinc box 7. The air supply is now admitted through the nozzles 21 and the mixture of slime and solution forced or lifted up the air lift pipes 20 to the launders 26 from whence it gravitates back to the tanks 1.

It will be obvious that the rate of flow of the pulp or concentrated underflow into the well of the pump 12 will depend on the resistance head of the liquid contained therein, and if this head be maintained as nearly as possible constant, say by the float 23, and rod 25a regulating the air supply through valve 25b, the rate of flow will remain practically constant.

The mixture conducted back to the tanks 1 again separates into the clear overflowing liquid and concentrated or thickened pulp, and the clear overflowing liquid, which is maintained at the requisite strength of cyanide and alkali passes continuously through the precipitation box 7 and having been deprived of its precious metal contents returns to the air lift pumps 12 to mix with the thickened pulp

from the vats. As the mixture of the solvent solution and solids is continuously circulated as described and the solid matter thoroughly and continuously aerated in its passage through the lift pumps, more and more of the precious metal contents of the slimes is extracted by the solvent solution, and the operation is continued until practically all the precious metal has been dissolved and precipitated.

The now treated mixture is transferred to the settling tank 27 by opening the valves 29, which permit the thickened pulp and solution remaining in the vats 1 to gravitate along the pipes 28 down to the level of the top of the settling vat 27. The transfer is completed through the same pipes 28 by the air lift pumps 12. The solution separated in the settling vat 27 is run off through the decanting arm 30 to a suitable receptacle, and the residue conveyed to the sump or depositing site.

In the modified arrangement illustrated in figure 7, 34 represents the treatment vat or tank, 35 the conical baffle, 36 the annular overflow or rim launder, and 37 the pipe connection with the precipitation box 38.

In this arrangement the lift pipe 39 of the pump which is provided with suitable spreaders or distributors at the top, is disposed within the treatment vat 34 (which serves as the well of the pump), and the compressed air inlet pipe 41 is shewn projecting through the discharge pipe 42.

Although I show the barren solution conducted from the precipitation box 38 by pipe 43 to a suitable receiver or sump 44 and conveyed therefrom to the top of the lift pipe 39 by centrifugal or other suitable pump 45 and pipe connections 46, it

will be apparent that the solution may be returned or conducted to the treatment vat 34 or air lift 39 at the bottom thereof.

The operation of this arrangement is as follows:- The ore slimes, preferably mixed with the requisite cyanide or other solution, are run into the treatment vat 34 the air supply turned on and the separated liquid allowed to overflow into the precipitation box 38 and from thence to the sump or receiver 44. From the sump 44 the solution freed of its metal contents is preferably conveyed to the top of the air lift 39 wherein it mixes with the thickened pulp elevated by the air lift. The mixture is continuously circulated in the treatment vat until practically all the precious metal contents of the ore slimes are extracted, the solids allowed to settle and the solution remaining in the vat decanted off for further use.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:-

1. In the extraction of gold and silver from crushed ore or ore slimes, the process wherein the material mixed with a solvent solution are introduced into a concentrator from which clear liquid is continuously or repeatedly withdrawn from the thickened pulp, freed of its contained precious metals and returned to the concentrator and again mixed with the thickened pulp, substantially as hereinbefore described.

2. In the extraction of gold and silver from crushed ore or ore slimes by the process described in

claim 1, the method wherein the solvent solution after being freed from its contained precious metals is returned to the concentrator in the presence of air under pressure, substantially as hereinbefore described.

3. In the process of extracting gold and silver from crushed ore or ore slimes, continuously treating the material in a suitable concentrator with solvent solution, allowing the solids to settle and the metal bearing solution to overflow extracting the metal contents of the overflowing liquid, mixing the thickened pulp with the returned solution by means of air under pressure to obtain a thorough aeration of the mixture, and returning the aerated mixture to the concentrator by the pressure, substantially as hereinbefore described.

4 In apparatus for carrying out the process herein described of extracting gold and silver from crushed ore or ore slimes, the combination of a concentrator, means for precipitating the precious metals, means for conducting overflowing liquid from the concentrator to the said precipitation means, means for conducting the solvent solution, freed of its precious metal contents, to mix with the concentrated underflow, and means for mixing the concentrated underflow with the solvent solution freed ~~freed~~ from its precious metal contents and for returning the mixture to the concentrator, substantially as hereinbefore described.

5. In apparatus for carrying out the process herein described of extracting gold and silver from crushed ore or ore slimes, the combination of a concentrator, means for precipitating the precious metals, means for conducting overflowing liquid from the concentrator to the said precipitation means, means for conducting the solvent solution, freed of its precious metal contents to mix

with the concentrated underflow, means for conducting the concentrated underflow from the concentrator to an air-lift pump to mix with the solvent solution freed of its precious metals, and means for returning the aerated mixture to the concentrator, substantially as hereinbefore described.

6. Apparatus for extracting gold and silver from crushed ore or ore slimes, consisting of the parts constructed and arranged substantially as hereinbefore described and illustrated respectively in figures 1 to 6 and 7 of ~~the accompanying~~ drawings.

3. The applicant therefore applies for leave to file a specification of the Invention pursuant to Part I of the Inventions and Designs Act 1888.

Andrew J. Crosse

I the applicant above named, do declare that what is stated in the above application is true to my knowledge except as to matters stated on information and belief, and as to those matter I believe them to be true.

Andrew J. Crosse.

Dated the 28th day of February 1910.

A. F. Brosse

1910.

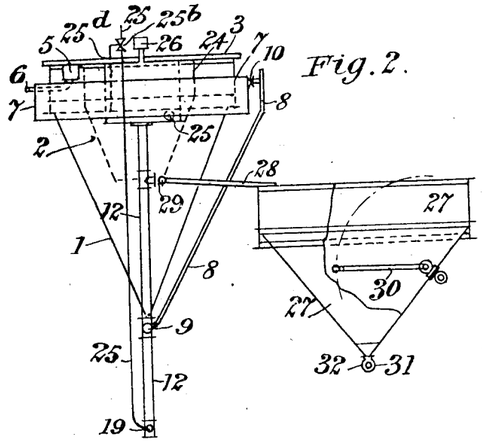


Fig. 2.

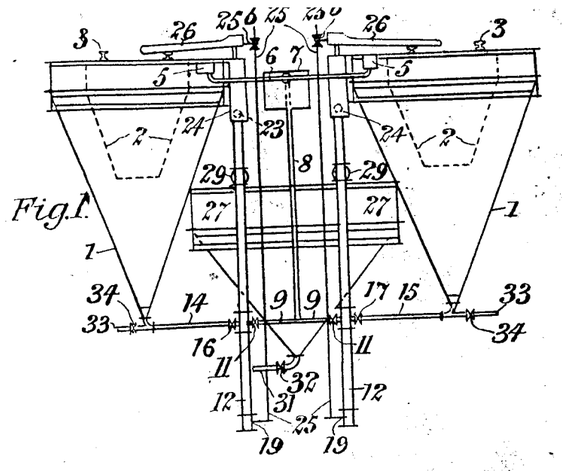
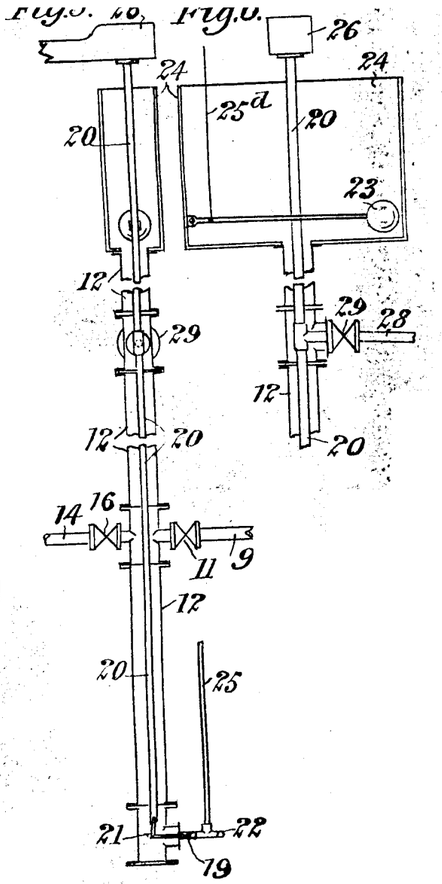


Fig. 1.



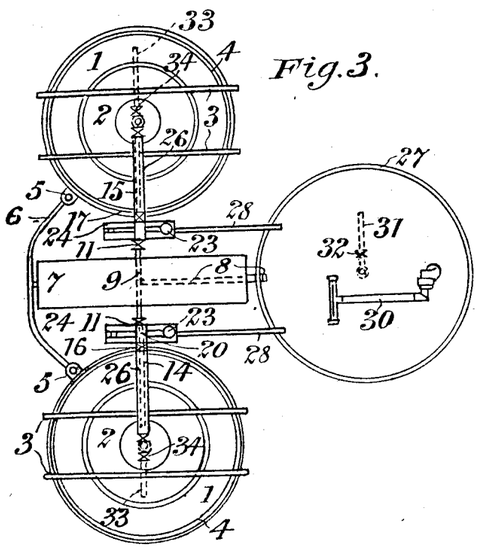


Fig. 3.

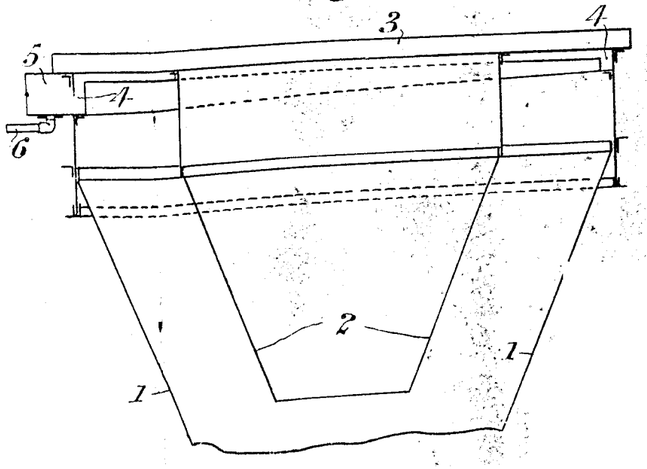


Fig. 4.

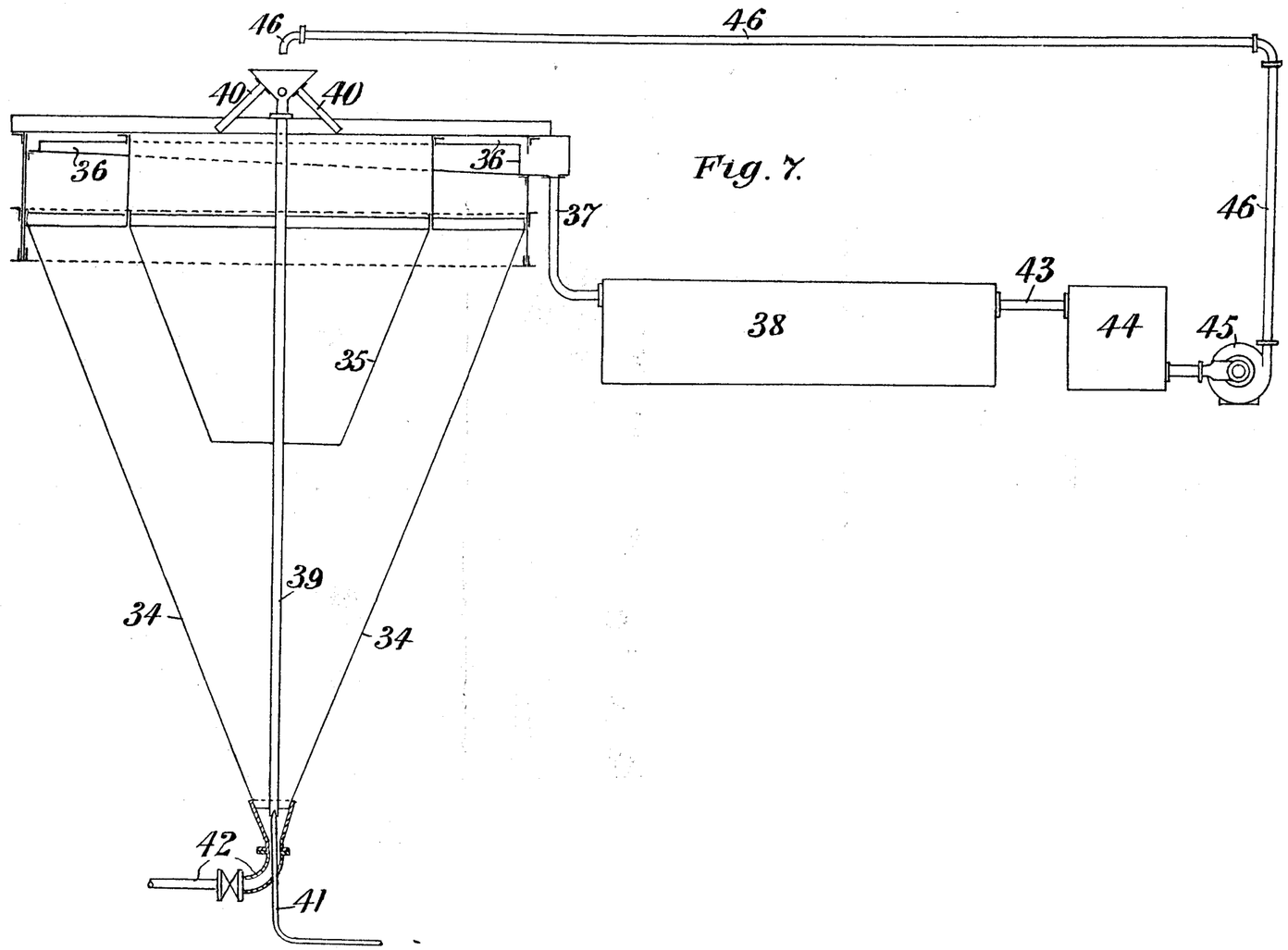


Fig. 7.

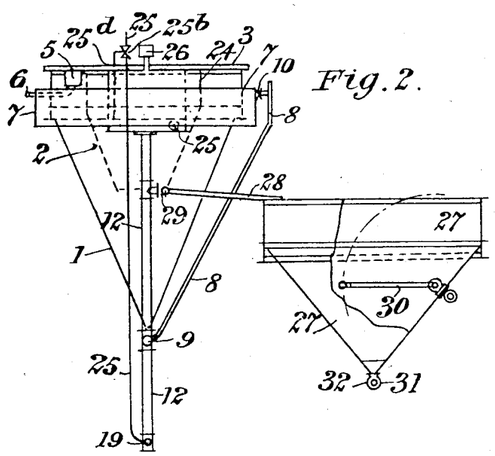


Fig. 2.
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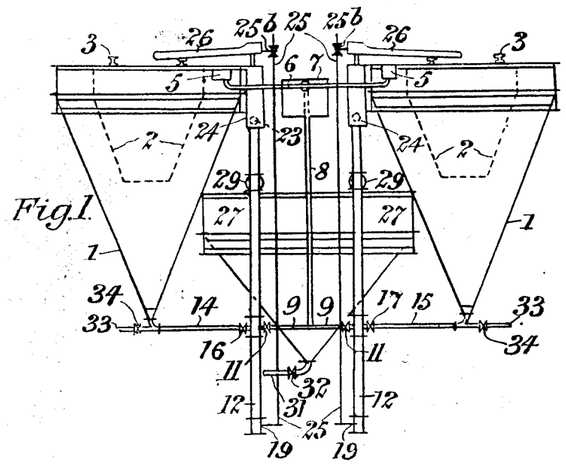
Fig. 1.
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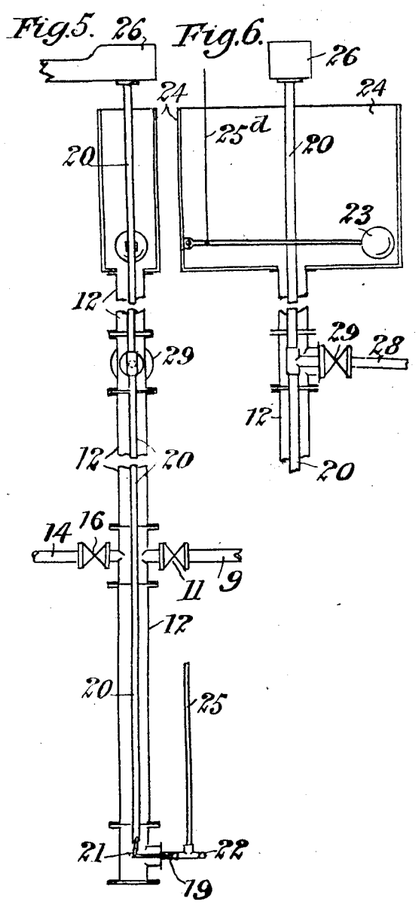
Fig. 5.
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Fig. 6.
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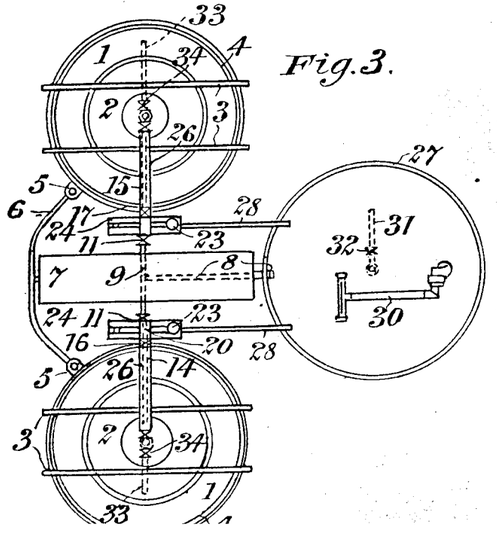
Fig. 3.
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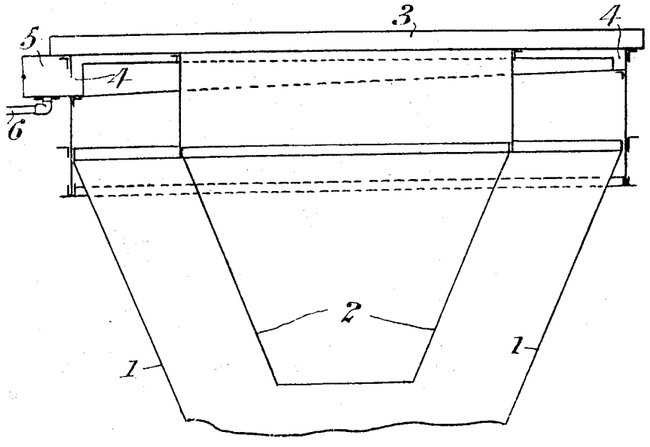
Fig. 4.
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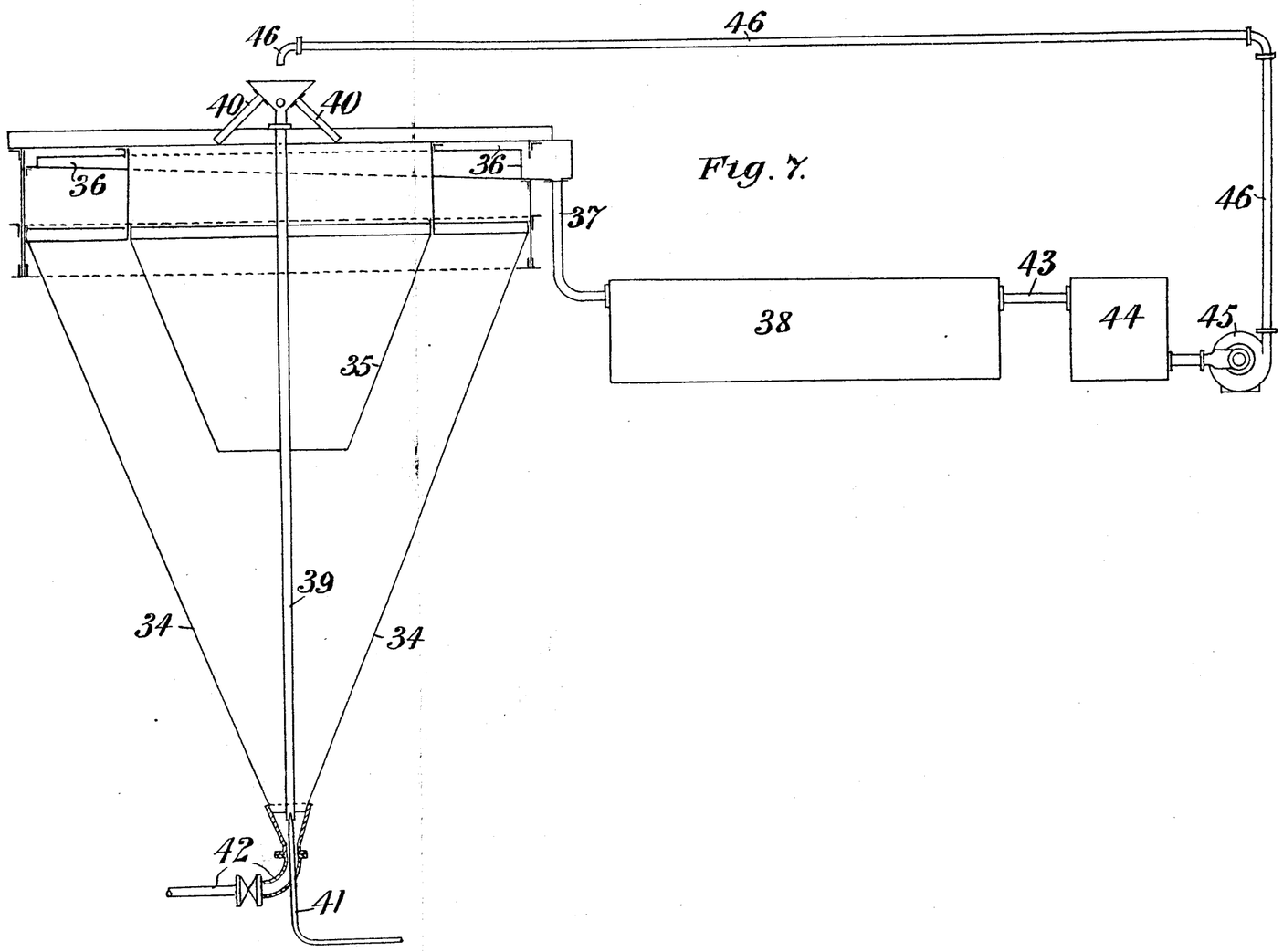


Fig. 7.

G.R.S. 26]

File No. 268-09
Serial No. 2

Diary No. of letter replied to 4828

No G.5733

General and Revenue Secretariat
( )
, *the* 190

To
Messrs Deloitte Deloitte
Patent Agents 19
Hatton Lane, Holborn
London

Gentlemen,

In acknowledging your letter dated the 20th April 10 forwarding an application by Mr. Andrew Frederick Crosse of 41 Oxford Terrace, Hyde Park, London, for leave to file a specification in respect of an invention for "Improvements in extracting gold and silver from crushed ore and ore slimes and means therefor", I am directed to observe that

Date of issue 3rd May 1910.

Signed by M. B. Ramaswamaier

SUBJECT.

mention
No ~~reference~~ has been
made in the application
as to whether any application for leave
to file a specification
~~the same~~
of the invention has been
made ~~either in the United~~
~~Kingdom or~~ in the
Empire of India and,
the latter be the case,
if so to request that
or
an authenticated copy
of the order granting leave
to file the specification of the invention
may be obtained from
~~either of the above~~ the Courts of India
and
~~may be in like manner~~ forwarded
to this Office as an early date.

List of enclosures

I have &c
29.4.10
for Sec of State

Copied by S Wilson 30/4.

Examined by

C.S. See please the reverse letter to the [illegible] endorsement

Cover & enclosures sent 3/5/10

29/4/10

G.R.S. 29A]

190 .

From

Secy. to the Govt. of His Highness the Maharaja of Mysore, Genl. and Rev. Dept.

To

The Officer in Charge

Dated 3. 5. 10. Hall Dagar Bg

Despatched

Received

General No. G. 5734

Genl. No. 268-09-3

Enclosure No.

Has the honor to remit herewith Rs 16 (sixteen only) being the fee for an application of Mr. Andrew Frederick Crosse of London, for leave to file a specification in respect of an invention for "Improvements in extracting gold and silver from crushed ore

and ore slimes and means

therefor" and to request the favor

of an acknowledgment.

29.4.10.

For Borax Co

VS

G.R.S. 29A]

190 .

From

Secy. to the Govt. of His Highness the Maharaja of Mysore, Genl. and Rev. Dept.

To the State Geologist

Dated 3-5-10 in Mysore.

Despatched

Received

General No. G 5735

Sln No. 268-09-4

Enclosure No.

Has the honor to forward for report under Sec 6(2) of the Mysore Inventions & Designs Regn 1894, a specification in respect of an invention for "Improvements in extracting gold and silver from crushed ore and ore slimes and means therefor" received from

Mrs Andrew Frederick Crosse
J London - through messrs
Depenning Depenning
Patent agents of Howrah -

By order

29.4.10

for Offg Secy

Respectfully
J Indian
30/4

M. G. D. 13]

MYSORE GEOLOGICAL DEPARTMENT,

DATED BANGALORE, 7th May 190

No. 2305—
Encls.

From

DR. W. F. SMEETH, M.A., D.SC., A.R.S.M., etc.,
State Geologist in Mysore.

To

C.S. Balasundaram Iyer, Esquire, B.A.,
Offg. Secretary to the Government of His Highness the Maharaja of Mysore, Gen.& Rev. Depts.

SIR,

In reply to your docket No.G.5735/G.M.268-09-4, dated 3rd May 1910, I have the honour to state that I have examined the specification sent therewith. The process has in view the more or less continuous recovery of gold from tailings and slimes for which purpose a large number of inventions have been experimented with. The precise arrangement of plant presents some novely features and has not hitherto been patented in Mysore and I am of opinion that the leave applied for may be granted.

The enclosures to your docket under reply are returned herewith.

I have the honour to be,
Sir,
Your most obedient servant,

W. F. Smeeth

C.N.

State Geologist in Mysore.

GPB—8-9-08—300

A P B L I C A T I O N

To

The DEWAN of MYSORE

The application of ANDREW FREDERICK CROSSE, of 41 Oxford Terrace, Hyde Park, London, England, Consulting Metallurgist, for leave to file a specification under Part 1 of the Inventions and Designs ~~Rules~~ Regulation, 1894.

1, The Applicant has obtained a Patent in the United Kingdom dated and sealed as on the 5th day of January 1909 and actually sealed on the 9th day of December 1909, for "IMPROVEMENTS IN EXTRACTING GOLD AND SILVER FROM CRUSHED ORE AND ORE SLIMES AND MEANS THEREFOR".

2, To the best of the information and belief of the applicant, the invention is new within the meaning of Part 1 of the Inventions and Designs Regulation 1894, and no circumstance exists which, if the applicant is authorized to file a specification and files it in accordance with that Part, will disentitle him to an exclusive privilege thereunder in respect of the invention.

3. The following is a description of the invention

This invention relates to the extraction of gold and silver from crushed or pulverised ore, or from ore slimes, i.e., the minute particles of pulverised ore mixed with liquid. It is designed with the object of treating the material effectually and expeditiously, and consists in treating the slimes or the like with solvent solution, obtaining a thickened pulp or concentrated underflow and a relatively clear overflowing liquid, extracting the precious metal contents from the overflowing solvent solution, then directly returning the solvent solution freed of the precious metals and mixing it with the concentrated underflow, so that the solids are repeatedly treated with the solvent solution during circulation and until practically the whole of the precious metal contents are extracted.

In carrying out this invention I may use a concentrator or classifier, preferably in the form of a conoidal vessel provided with an annular overflow or rim launder; means (preferably an ordinary zinc precipitation box) for extracting the precious metals from the solvent solution or liquid overflowing from the concentrator or classifier; an air lift pump for returning the concentrated underflow or thickened mixture and solution freed of the precious metals to the top of the concentrator; and a supply of compressed air at a pressure proportionate to the height the mixture has to be lifted.

I will proceed to further describe my invention by aid of the accompanying drawings, in which

Figure 1 is a front elevation of a general arrangement of plant for carrying out my invention.

Figure 2 is a side elevation of figure 1, with one of the treatment tanks 1, and its connections removed.

Figure 3 is a plan of figure 1.

Figure 4 is an enlarged view of the concentrator or classifier.

Figure 5 is a side elevation of the air lift pump and its connections.

Figure 6 is a part sectional elevation at right angles to figure 5, shewing the float box with the rod for operating the air valve, and

Figure 7 is a slightly modified arrangement of a plant for carrying out the invention.

Referring more particularly to the arrangement illustrated in figures 1, 2 and 3, 1 represent suitable treatment tanks, (shown of inverted cone shape for the greater portion of their height and cylindrical for the remaining portion,) into which the slimes or the like containing the gold and silver values are conducted. The slimes are preferably first mixed with water (in which case the solvent solution would be subsequently added) or cyanide or other solvent solution in the usual proportion to obtain a liquid pulp or mixture of the solids and liquid of a suitable degree of fluidity.

2, represent conical baffles supported in the tanks 1 by girders 3 resting upon or secured to the upper edges of the tanks. These baffles 2 serve for preventing the too violent agitation of the mixture as it flows into the tanks, and facilitates the settlement of the solids.

Each of the tanks 1 is provided with an annular overflow or rim launder 4 having a pocket 5 and pipe connection 6 (see more particularly figure 4) communicating with an ordinary precipitation box 7. The precipitation box 7 is placed in communication, through suitable pipe connections 8, 9, provided with cocks or valves 10, 11 with air lift pumps 12, which are also connected with the bottoms of the tanks 1 by pipes 14, 15, provided with cocks or valves 16, 17,

Each of the air lift pumps, as shown more particularly in figures 5 and 6, comprises a well 12 having an air admission pipe 25 fitted with cock 19, and the lift pipe 20. The air pipe 25 is connected to the bottom of the well 12 and is provided with the usual nozzle 21 and a cleaning plug 22. The admission of the air to the pump is controlled by a float 23 suitably disposed in a float box 24. The float lever is connected to a rod 25a which at its other extremity is connected to and actuated a valve 25b see figures 1 and 2.

26 represent launders shown attached to and arranged to receive the mixture from the lift pipes 20 of the pumps. These launders 26 deliver the mixture elevated by the pumps 12, to the tanks 1.

27 represents a suitable settling vat or tank into which the finished or treated material is conducted from the air lift pumps 12 by pipes 28 provided with cocks 29. The settling tank is preferably provided with a decanting arm 30.

31 represents the discharge pipe at the bottom of the settling vat, which pipe 31 is fitted with a cock 32.

33 represent pipes fitted with cocks 34, which may be used for discharging the material instead of conducting it to the settling vat.

The operation may be briefly described as follows:- The crushed ore or slimes containing the metal values to be extracted having been preferably first mixed with water (to which the solvent solution would be subsequently added) or cyanide or other solvent solution in the usual proportion to obtain a liquid pulp or mixture, are conducted in the baffle

cones 2 of the concentrators or conoidal vats 1 wherein the solids settle and from which the separated liquid overflows into the annular overflow or rim launders 4. From the rim launders 4 the liquid (now bearing a certain proportion of the metal values) flows into the precipitation box 7, wherein the values are precipitated, and from thence by the pipes 8, 9, to the wells of the air lift pumps 12 and to the float boxes 24. The valves 16, 17 on the connections 14, 15 between the bottoms of the tanks 1 and air lift pumps 12 are now opened and the concentrated underflow permitted to gravitate into the wells of the pumps 12 to mix with the new barren solution from the zinc box 7. The air supply is now admitted through the nozzles 21 and the mixture of slime and solution forced or lifted up the lift pipes 20 to the launders 26 from whence it gravitates back to the tanks 1.

It will be obvious that the rate of flow of the pulp or concentrated underflow into the well of the pump 12 will depend on the resistance head of the liquid contained therein, and if this head be maintained as nearly as possible constant, say by the float 23, and rod 25a regulating the air supply through valve 25b, the rate of flow will remain practically constant.

The mixture conducted back to the tanks 1 again separates into the clear overflowing liquid and concentrated or thickened pulp, and the clear overflowing liquid, which is maintained at the requisite strength of cyanide and alkali passes continuously through the precipitation box 7 and having been deprived of its precious metal contents returns to the air lift pumps 12 to mix with the thickened pulp

from the vats. As the mixture of the solvent solution and solids is continuously circulated as described and the solid matter thoroughly and continuously aerated in its passage through the lift pumps, more and more of the precious metal contents of the slimes is extracted by the solvent solution, and the operation is continued until practically all the precious metal has been dissolved and precipitated.

The now treated mixture is transferred to the settling tank 27 by opening the valves 29, which permit the thickened pulp and solution remaining in the vats 1 to gravitate along the pipes 28 down to the level of the top of the settling vat 27. The transfer is completed through the same pipes 28 by the air lift pumps 12. The solution separated in the settling vat 27 is run off through the decanting arm 30 to a suitable receptacle and the residue conveyed to the sump or depositing site

In the modified arrangement illustrated in figure 7, 34 represents the treatment vat or tank, 35 the conical baffle, 36 the annular overflow or rim launder, and 37 the pipe connection with the precipitation box 38.

In this arrangement the lift pipe 39 of the pump which is provided with suitable spreaders or distributors at the top, is disposed within the treatment vat 34 (which serves as the well of the pump), and the compressed air inlet pipe 41 is shewn projecting through the discharge pipe 42.

Although I show the barren solution conducted from the precipitation box 38 by pipe 43 to a suitable receiver or sump 44 and conveyed therefrom to the top of the lift pipe 39 by centrifugal or other suitable pump 45 and pipe connections 46, it

will be apparent that the solution may be returned or conducted to the treatment vat 34 or air lift 39 at the bottom thereof.

The operation of this arrangement is as follows:- The ore slimes preferably mixed with the requisite cyanide or other solution, are run into the treatment vat 34 the air supply turned on and the separated liquid allowed to overflow into the precipitation box 38 and from thence to the sump or receiver 44. From the sump 44 the solution freed of its metal contents is preferably conveyed to the top of the air lift 39 wherein it mixes with the thickened pulp elevated by the air lift. The mixture is continuously circulated in the treatment vat until practically all the precious metal contents of the ore slimes are extracted, the solids allowed to settle and the solution remaining in the vat decanted off for further use.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:-

1. In the extraction of gold and silver from crushed ore or ore slimes, the process wherein the material mixed with a solvent solution are introduced into a concentrator from which clear liquid is continuously or repeatedly withdrawn from the thickened pulp, freed of its contained precious metals and returned to the concentrator and again mixed with the thickened pulp, substantially as hereinbefore described.

2. In the extraction of gold and silver from crushed ore or ore slimes by the process described in

claim 1, the method wherein the solvent solution after being freed from its contained precious metals is returned to the concentrator in the presence of air under pressure, substantially as hereinbefore described.

3. In the process of extracting gold and silver from crushed ore or ore slimes, continuously treating the material in a suitable concentrator with solvent solution, allowing the solids to settle and the metal bearing solution to overflow extracting the metal contents of the overflowing liquid, mixing the thickened pulp with the returned solution by means of air under pressure to obtain a thorough aeration of the mixture, and returning the aerated mixture to the concentrator by the pressure, substantially as hereinbefore described.

4. In apparatus for carrying out the process herein described of extracting gold and silver from crushed ore or ore slimes, the combination of a concentrator, means for precipitating the precious metals, means for conducting overflowing liquid from the concentrator to the said precipitation means, means for conducting the solvent solution, freed of its precious metal contents, to mix with the concentrated underflow, and means for mixing the concentrated underflow with the solvent solution freed ~~freed~~ from its precious metal contents and for returning the mixture to the concentrator, substantially as hereinbefore described.

5. In apparatus for carrying out the process herein described of extracting gold and silver from crushed ore or ore slimes, the combination of a concentrator, means for precipitating the precious metals, means for conducting overflowing liquid from the concentrator to the said precipitation means, means for conducting the solvent solution, freed of its precious metal contents to mix

with the concentrated underflow, means for conducting the concentrated underflow from the concentrator to an air-lift pump to mix with the solvent solution freed of its precious metals, and means for returning the aerated mixture to the concentrator, substantially as hereinbefore described.

6. Apparatus for extracting gold and silver from crushed ore or ore slimes, consisting of the parts constructed and arranged substantially as hereinbefore described and illustrated respectively in figures 1 to 6 and 7 of the ~~accompanying~~ drawings.

3. The applicant, therefore, applies for leave to file a specification of the Invention pursuant to part I of the Inventions and Designs Act 1888.

Andrew F Crotte

I, the applicant above named, do declare that what is stated in the above application is true to my knowledge, except as to matters stated on information and belief, and as to those matters I believe them to be true.

Andrew F Crotte.

Dated the 28th day of February 1910.

A. T. Crosse

1910.

Fig. 2.

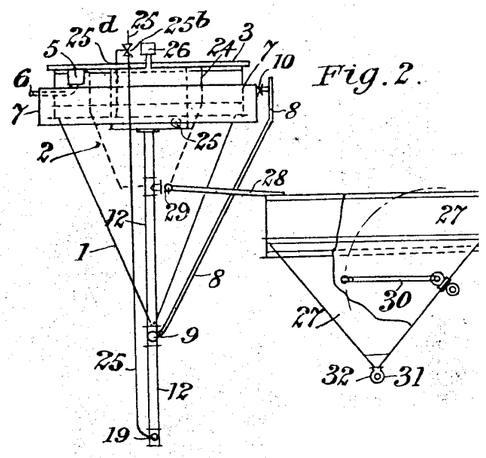


Fig. 1.

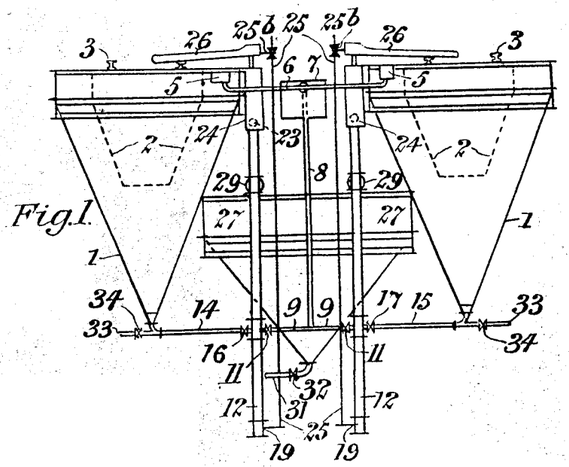


Fig. 5.

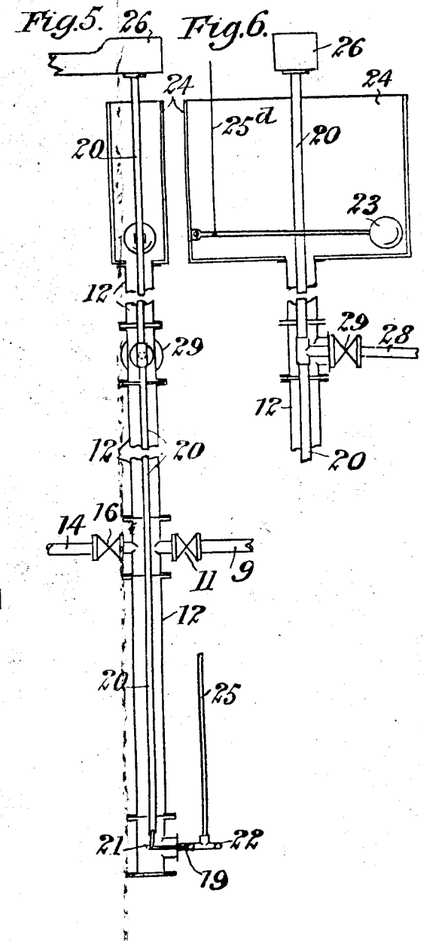


Fig. 6.

Fig. 3.

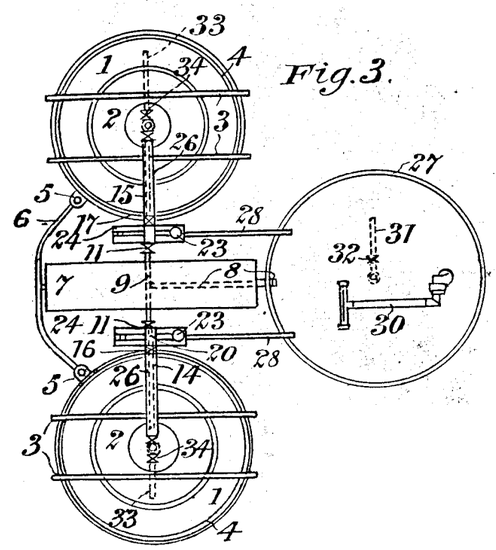
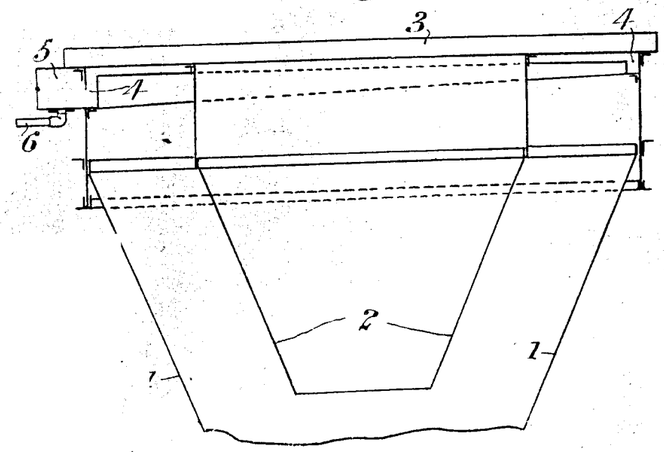


Fig. 4.



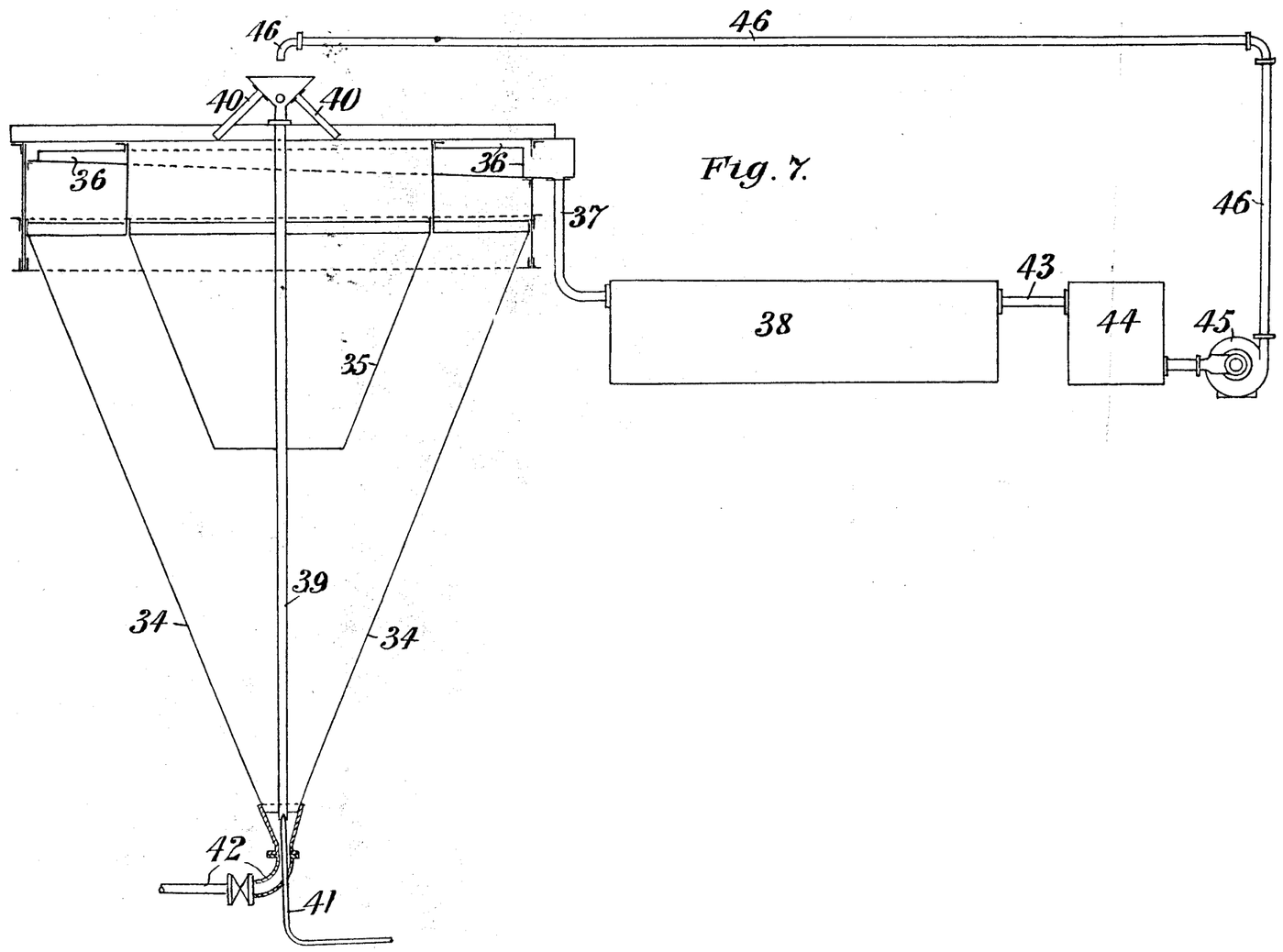


Fig. 7.

Cyn. 2680/09-10

8C 6

No. 182 V 11.5.10 D 4574/9 Rs 10/-

Received From Mr. Andrew Frederick Crosse of London through the Officiating Secretary to Government of Mysore, General and Revenue Departments, Bangalore

the sum of Rupees Ten only being the fee for an application for leave to file a specification in respect of an invention for "Improvements in Extracting gold and silver from crushed ore and ore Slimes and means therefor" and credited this day Vide, Secretary's No. Cy 5734/Cyn 268-09-3 dated 3-5-1910

H. H. The Maharaja's State Huzur Treasury,
Bangalore, the 7 May 1910

By Order,

Exd.

Hd. Accett. ~~Bakshi.~~ Treasurer

Treasury Officer, State Huzur Treasury.

No. 142

Howrah.

Cyn. 268/09 - 16

9th June 1910.

L. 503/

To

The Secretary to the Government of
His Highness
The Maharaja of Mysore
General & Revenue Department.

Sir,

We have the honour to acknowledge receipt of your letter No. G.5733 SM.268-09-2 dated 3rd May 1910, and have now the honour to enclose, certified copy of the Order passed on Mr. A. T. Cross's corresponding Indian Application filed in Mysore with our letter of the 20th April 1910, and trust that Order to file Specifications may now be passed.

We have the honour to be
Sir
Your most obedient servants
DePenning & DePenning

DEPENNING & DEPENNING
PATENT AGENTS
CALCUTTA.

No.

GOVERNMENT OF INDIA.

Department of Commerce and Industry.

Register No. 135 of 1909.

Calcutta, the 21st April 1909.

WHEREAS an application, dated the 18th February and received on the 11th March 1909, has been submitted under section 5 of the Inventions and Designs Act, 1888, by Andrew Frederick Crosse, consulting metallurgist, of 41 Oxford Terrace, Hyde Park, in the county of London, England,

(hereinafter referred to as "the applicant") for leave to file a specifiicaton of an invention for improvements in extracting gold and silver from crushed ore and ore slimes and means therefor;

And whereas the applicant has duly complied with all the requirements of section 5 of the said Act;

The Governor-General in Council is pleased, under section 6 of the said Act, to authorize the applicant to file a specification of the said invention in accordance with the provisions of the said Act.

ORDERED, that the applicant be, and he is hereby, informed accordingly.

By order of the Governor-General in Council,

Sd/- H. G. Graves

Assistant Secretary to the Government of India.

No.

Dated the 4th May 1909.

Certified that the fees prescribed in the fourth schedule to the Inventions and Designs Act, 1888, in respect of the application for leave to file the said specification and of the filing thereof have been paid by the applicant, and that the specification hereinbefore described has been duly filed in accordance with the provisions of section 8* of the said Act on this the twenty-fourth day of April 1909.

Sd/- H. G. Graves,

Assistant Secretary to the Government of India.

(True Copy.)

Superintendent, 3/6/10.
The Patents Office

Dept. of C. & I. Patents Regr. No. 24.

* See reverse.

Section 8 of the Inventions and Designs Act, 1888.

8. (*1*) If within six months from the date of an order under section 6, sub-section (*1*), or within such further time, not exceeding three months, as the Governor-General in Council, in his discretion, may, on cause shown to his satisfaction and on payment of the fee prescribed in that behalf in the fourth schedule, see fit to allow, the applicant causes a specification of his invention to be filed in manner by this Part required, and the fee prescribed in the fourth schedule in respect of the filing of the specification to be paid, the applicant shall, subject to the other provisions of this Part, be entitled to the exclusive privilege of making, selling and using the invention in British India, and of authorising others so to do, for a term of fourteen years from the date of the filing of the specification.

(*2*) But an exclusive privilege in respect of an invention of a new manufacture shall, notwithstanding anything in sub-section (1), cease if the inventor fails to pay, within the time limited in that behalf by the fourth schedule, any fee prescribed in that schedule in respect of the continuance of the privilege.

(*3*) If, nevertheless, in any case, by accident, mistake or inadvertence, an inventor fails to pay any such fee within the time so limited, he may apply to the Governor-General in Council for an enlargement of the time for making the payment.

(*4*) Thereupon the Governor-General in Council may enlarge the time accordingly, on payment of the fee prescribed in that behalf in the fourth schedule and subject to the following conditions, namely :—

(*a*) the time for making a payment shall not in any case be enlarged for more than three months ; and

(*b*) if any suit is instituted in respect of an infringement of the exclusive privilege committed after a failure to make a payment within the time limited for the making thereof and before the enlargement of that time, the Court disposing of the suit may, if it thinks fit, refuse to award or give any damages in respect of the infringement.

G. P. I.—No. 125 C. I.—9-10-09—1,000.

No. G 184/Gen. 268-09-8 Dt. 8th July 1910.

GOVERNMENT OF MYSORE

General Department.

Register No. 20 **of 190** 9.-10.

Bangalore, the ..... 19 .

WHEREAS an application, dated the 28th Feb 1910 and received on the 23rd April 1910, has been submitted under Section 5 of the Mysore Inventions and Designs Regulation, 1894, by Sir Andrew Frederic Crosse, of 41 Oxford Terrace, Hyde Park, London, England, consulting metallurgist

(hereinafter referred to as "the applicant") for leave to file a specification of an invention for "Improvements in extracting gold and silver from crushed ore and ore dumps and means therefor"

And whereas the applicant has duly complied with all the requirements of Section 5 of the said Regulation;

The Government of Mysore are pleased, under Section 6 of the said Regulation, to authorize the applicant to file a specification of the said invention in accordance with the provisions of the said Regulation.

ORDERED, that the applicant be, and he is hereby, informed accordingly.

By Order of the Government of Mysore,

25/7/10

for [illegible] *Secretary to the Govt. of Mysore,*
Gen. and Rev. Depts.

Certified that the fees prescribed in the fourth schedule to the Mysore Inventions and Designs Regulation, 1894, in respect of the application for leave to file the said specification and of the filing thereof have been paid by the applicant, and that the specification hereinbefore described has been duly filed in accordance with the provisions of Section 8 of the said Regulation on this the twenty first day of July 1910 190 .

26.7.10

for [illegible] *Secretary to the Govt. of Mysore,*
Gen. and Rev. Depts.

(*Section 8 of the Inventions and Designs Regulation, 1894.*)

8. (1) If within six months from the date of an order under Section 6, Sub-Section (1), or within such further time, not exceeding three months, as the Government of Mysore, in its discretion, may, on cause shown to its satisfaction and on payment of the fee prescribed in that behalf in the fourth schedule, see fit to allow, the applicant causes a specification of his invention to be filed in manner by this Part required, and the fee prescribed in the fourth schedule in respect of the filing of the specification to be paid, the applicant shall, subject to the other provisions of this Part, be entitled to the exclusive privilege of making, selling and using the invention in the Territories of Mysore, and of authorizing others so to do, for a term of fourteen years from the date of the filing of the specification.

(2) But an exclusive privilege in respect of an invention of a new manufacture shall, notwithstanding anything in Sub-Section (1), cease, if the inventor fails to pay, within the time limited in that behalf by the fourth schedule, any fee prescribed in that schedule in respect of the continuance of the privilege.

(3) If, nevertheless, in any case, by accident, mistake, or inadvertence, an inventor fails to pay any such fee within the time so limited, he may apply to the Government of Mysore for an enlargement of the time for making the payment.

(4) Thereupon the Government of Mysore may enlarge the time accordingly, on payment of the fee prescribed in that behalf in the fourth schedule, and subject to the following conditions, namely :—

(*a*) the time for making a payment shall not in any case be enlarged for more than three months ; and

(*b*) if any suit is instituted in respect of an infringement of the exclusive privilege committed after a failure to make a payment within the time limited for the making thereof and before the enlargement of that time, the Court disposing of the suit may, if it thinks fit, refuse to award or give any damages in respect of the infringement.

GPB—500—7-4-09.

G.R.S. 2

8.m File No. 268 - 09
Serial No. 9

Diary No. of letter replied to _____

No G 185 Encl

General and Revenue Secretariat
( )
, the 190

Date of issue 8. 7. 10

Signed by Mr FG Rama Iyer

To

Messrs de Penning & de Penning
Patent Agents
19 Watkins Lane
Howrah.

Gentlemen,

With reference to your letter dated the 20th April 10 forwarding an application from Mr Andrew Frederick Crosse of 410 Kensington Terrace, Hyde Park, London, England, consulting metallurgist, for leave to file a Specification for an improvement in extracting gold and silver from crushed ore and ore slimes and

over.

SUBJECT.

means therefor", I am directed to forward herewith an order[x] no G 184/gm 268-09-8 dated 8th July 1910 — issued in the name of the applicant and to request that the same may be communicated to the party concerned and an acknowledgment thereof sent to this office.

I have &c

for Secy

[x] Convention Register no 20 J — 1909-10.

List of enclosures

Copied by [illegible] 6-7-10.

Examined by

GPB—10,000—20-4-06.

19 Watkins Lane, Howrah

C A L C U T T A

16th July 1910

No 179.

To

The Secretary to the Government of His Highness
The Maharaja of Mysore,
General & Revenue Depts.
Bangalore

Sir,

We have the honor to enclose herewith under Order dated the 8th July 1910 Patent Rgr. No 20 of 1909 & 1910 the specification of Mr Andrew Frederick Crosse of 41 Oxford Terrace, Hyde Park, London, England, consulting metallurgist, of an invention for "Improvements in extracting gold and silver from crushed ore and ore slimes and means therefor".

We also forward the fee thereon of Rs 30/- and shall feel obliged by the certificate being sent to us in due course.

The Order in this case is herewith returned.

We have the honor to be
Sir,
Your most obedient servants

DePenning & DePenning

DEPENNING & DEPENNING
PATENT AGENTS
CALCUTTA.

Amount of Order £ 3.0 /- /-

Name of Remitter Messrs DePenning & DePenning

Fee on A. F. Crone's Spec^n (please see our letter dated 16th July 1910)

D o D

No. G 654/Gen 268-09-11

MYSORE GOVT. GEN. & REV. SECRETARIAT,

Dated Bangalore, 30th July 1910.

NOTIFICATION.

(PATENT.)

The following specification of an invention has been filed in accordance with Sections 8, 9, 10 and 11 of Regulation XI of 1894 (The Inventions and Designs Regulations) and is open to inspection at the Mysore Government Secretariat on application to the Secretary to the Government of His Highness the Maharaja of Mysore, General and Revenue Departments, and on payment of a fee of one Rupee.

By Mr. Andrew Frederick Crosse of 41 Oxford Terrace, Hyde Park, London England, Consulting metallurgist.

"Improvements in extracting gold and silver from crushed ore and ore slimes and means therefor"

By Order,

26.7.10

For Sy. Secretary.

To

The Compiler, *Mysore Gazette*, for publication

Rec. 28/7

No. C 655/Gen 265-09-12 Enc 2

MYSORE GOVT. GEN. & REV. SECRETARIAT,

Dated Bangalore, 30th July 1910.

From

The Secretary to the Government of H. H. the Maharaja of Mysore,
General and Revenue Departments.

To

Messrs Le Pearce & Depenning
19 Watkins Lane, Howrah
Calcutta.

~~Sir,~~ Gentlemen

With reference to your letter dated the 16th July 10 I am directed to forward copy of a Notification No. dated issued by this Government in regard to the invention filed by you under Regulation XI of 1894, (The Inventions and Designs Regulation .

The order granting permission to file specification is herewith returned, with the certificate at foot, duly filled in and signed, to be returned to this Office by the party concerned.

I have the honor to be,

~~Sir,~~ Gentlemen

Your most obedient servant,

26.7.10

for Secretary.

G.R.S. 29A]

190

From

Secy. to the Govt. of His Highness The Maharaja of Mysore, Genl. and Rev. Dept

To

The Officer in charge of State Buildings

Dated

Despatched 30.7.10

Received

General No. G 656

Genl No. 268-09-13

ENCLOSURE No. Letter Rs Thirty only

Has the honor to remit herewith Rs 30 (Thirty only) being the fee paid by persons depositing / depositing in Calcutta for filing the specification in respect of an invention for "Improvements in extracting gold and silver from crushed ore and apparatus and means therefor" and to request an acknowledgment in the favour of

OBO

for Secy.

26.7.10

GPB—10,000—9-4-06

From

Secy. to the Govt. of His Highness
The Maharaja of Mysore,
Genl. and Rev. Dept

To
1) The Chief Engineer
2) The State Geologist
3) The Supdt of Govt Museum

Dated

Despatched 30-7-10

Received

General No. G 657-9
Spl. No. 268-09-14

ENCLOSURE NO. 1 each

Has the honor to forward herewith for being filed in his office, a copy of the specification in respect of an invention for "Improvements in extracting gold and silver from crushed ore and ore slimes and means therefor" and to request the favor of an acknowledgment.

By order

26.7.10

for S/ Secy

M.G.D. 13]

MYSORE GEOLOGICAL DEPARTMENT,

Dated Bangalore, 18th August 1910.

No. 189

From

DR. W. F. SMEETH, M.A., D.Sc., &c.,

State Geologist in Mysore.

To

C.S. Balasundaram Iyer, Esquire, B.A.,

Offg. Secretary to the Government of His Highness the Maharaja of Mysore, Gen.& Rev.Depts.

SIR,

I have the honour to acknowledge the receipt of the copy of the specification, forwarded with your No.G. 657-9/G.M.268-09-14, dated 30th July 1910, in respect of an invention for "Improvements in extracting gold and silver from crushed ore and ore slimes and means therefor".

I have the honour to be,

Sir,

Your most obedient servant,

for State Geologist in Mysore.

C.N.

Gen. 268 of 1907-10

SL 15

MYSORE GOVERNMENT.

No. 32 Nagar CV+CS D52 Rs. 30/-

Received From Messrs De Penning & De Penning of Calcutta, through the Secretary to the Govt of Mysore, General and Revenue Departments, Bangalore **the sum of Rupees** Thirty only being the fee for filing a Specification in respect of an invention for "Improvements in extracting gold and silver from crushed ore and ore slimes and means therefor" and credited this day. Vide, Secretary's No. G656/Gen 268-09-13 Dated 30 July 1910.

H. H. THE MAHARAJA'S STATE HUZUR TREASURY,
BANGALORE, the 2d August 1910

~~BY ORDER,~~

Exd.

Hd. Acctt. Bakshi. Treasurer

Treasury Officer, State Huzur Treasury.

1910-11. 46

From

G. H. KRUMBIEGEL, Esq., F.B.H.S.,
Economic Botanist,
Supt., Mysore Govt. Museum,
Bangalore.

E. M. 2685 09-10

9(7).

To C. S. Balasundaram Iyer Esqr. B.A.,
Offg. Secretary to the Govt. of H.H.
the Maharaja of Mysore,
Genl. & Revenue Departments,
Bangalore.

Dated 1st August, 1910.

Despatched 3rd ——

Received

General No. 43
No.

Enclosure No.

Acknowledging the receipt
a Copy of the Specification
respect of an invention of
"Improvements in extracting
Gold and Silver from Crushed
Ore and ore Slimes and means
therefor" by Mr. Andrew Frederick, London

——— : O : ———

GPB—300—15-7-10

No. 43

OFFICE OF THE ECONOMIC BOTANIST,
SUPERINTENDENT, MYSORE GOVERNMENT MUSEUM,
Bangalore, dated 1st/3 August 1910.

FROM

G. H. KRUMBIEGEL, ESQ., F.R.H.S.,
Economic Botanist,
Superintendent, Mysore Govt. Museum,
Bangalore.

To C. S. Balasundaram Iyer, Esqr. B.A.,
Offg. Secretary to the Govt. of H. H. the Maharaja
of Mysore, Genl. & Rev. Depts: Bangalore.

Sir,

I have the honor to acknowledge the receipt of a Copy of the Specification in respect of an invention for "Improvements in extracting gold and silver from crushed ore and ore slimes and means therefor" by Mr. Andrew Frederick, London, England. forwarded with Your No. G. 657-9 / Gr. M. 268-09-14 dated the 30th ultimo.

I have the honor to be,

Sir

Your most obedient Servant,

G. H. Krumbiegel

Economic Botanist

Supt., Mysore Govt. Museum

MYSORE P. W. DEPARTMENT.

No. 6899

CENTRAL OFFICE,

BANGALORE, 6th August 1910.~~190~~

From

M.Visvesvaraya,Esq., M.I.C.E.,
~~THE~~ CHIEF ENGINEER OF MYSORE,
BANGALORE.

fm 2682-09
fr 18

To

C.S.Balasundaram Iyer,Esq., B.A.,
~~The~~ Secretary to Government of His Highness
the Maharaja of Mysore, General and Revenue
Departments, Bangalore.

SIR,

I have the honour to acknowledge the receipt of a copy of the specification in respect of an invention for - - "Improvements in extracting gold and silver from crushed ore and ore slimes and means therefor" filed by Mr. Andrew Frederick Crosse, of 41 Oxford Terrace, Hyde Park, London, forwarded with your No. G.657-9/G.M.268-09-14 dated the 30th July 1910.

I have the honour to be,

Sir,

Your most obedient servant,

Deputy Chief Engineer,
Mysore P.W.Department.

0-669

5

1910-11.

MYSORE P. W. DEPARTMENT.

No. 6899-9.

From

THE CHIEF ENGINEER OF MYSORE,

Bangalore.

To The Secretary to Govt.,
General & Revenue Depts
Bangalore.

Dated Bangalore, 6th August 1910.

Despatched

Enclosure No.

SUBJECT.

Acknowledging the receipt
& copy of the Specifn. &
in respect of an invention
for "Improvements in
extracting gold and silver
from crushed ore and
ore slime and means
therefor" recd. with
N.G. 657-9/Gen. dtd. 28-8-29-14
dated the 30th July 1910.

S. J. Mr. Andrew Frowick Crosse of London

No. G. 184 dated 8. 7. 10.

Grants leave to file a specification in respect of the invention mentioned in Sl. 1

9. Messrs. De Penning & De Penning Howrah.

No. G. 185 dated 8. 7. 10

Communicates Sl. 8.

10. From Messrs. De Penning & De Penning dated 16. 7. 10.

Files the specification in question and remits Rs 30/- fee in filing.

11. To the compiler, Mysore Gazette

No. G. 654 dated 30. 7. 10.

Notifies the filing of the Specification Sl. 1.

12. To Messrs. De Penning & De Penning

No. G. 655 dated 30. 7. 10.

Forwards copy of Sl. 11 and returns Sl. 8. duly certified at Sol. 1 signed

13. To the officer in charge of P. H. Try

No. G. 656 dated 30. 7. 10

Remits Rs 30 read with Sl. 10.

14. To the Chief Engineer
the State geologist &
the Supdt of Govt Museum

No. G. 657-9 dated 30. 7. 10.

Forwards a copy each of the Specification referred to in Sl. 1

15. From the officer in charge of S.M.J.
Acknowledges the receipts of Rs 30/-
remitted with sl. 13.
No. 32 dated 2.8.10.

16. From the State Geologist.
No. 189 dated 1.8.10.
Acknowledges the ~~copy~~ receipt of a copy of the
specification sent with sl. 14.

17. From the Supdt. Govt. Museum.
No. 43 dated 1.8.10.
Acknowledges the receipt of a copy of
specification sent with sl. 14

18. From the Chief Engineer
Delhi No. 6899 dated 6.8.10.
Acknowledges the receipt of a copy of
Sp. specification sent with sl. 14 & three